Dr. Eva C. Herbst

Accepted Abstracts 2024 Conferences ** denotes student I supervised

2024 | Herbst EC, Lloyd JE, Sagl B, Ferguson SJ, Moroder P. *Towards Patient Specific Shoulder Modeling.* Invited speaker to special session: "Multiscale Modeling Using Combined Multibody and Finite Element Simulation". Comp. Meth. in Biomech. and Biomed. Engineering.

2024 | Herbst EC, Ferguson SJ, Moroder P. *The effect of scapulothoracic ellipsoid joint parameters on marker tracking errors.* European Soc. of Biomech.

2024 | Agbanyim D**, Davide C, Ferguson S, Moroder P, Herbst EC. *Developing and validating a phantomless calibration method for BMD analysis of the glenoid.* European Soc. of Biomech.

2024 | Stettler S**, Henninger H, Ferugson SJ, Moroder P, Herbst EC. *In vivo glenohumeral translations during arm elevation in healthy subjects.* European Soc. of Biomech.

2024 | Herbst EC, Agbanyim D**, Davide C, Ferguson S, Moroder P. *Bestimmung der Knochendichte des Glenoids mit einer neuen phantomlosen CT-Kalibrierungsmethode.* D-A-CH Verein. für Schulter- und Ellenbogenchirurgie (DVSE).

Conference Presentations * denotes co first author, ** denotes student I supervised

2023 | Bastiaans D**, **Herbst EC**, van de Kamp T, Zuber M, Scheyer TM. *The first 3D cranial and myological reconstruction of the highly flattened remains of Askeptosaurus italicus (Diapsida: Thalattosauriformes).* International Society for Vertebrate Morphology. Cairns, Australia. (Poster)

2021 | Evans LAE.*, **Herbst EC***, Felder AA, Ajami S, Jahaveri B, Pitsillides AA. *Do age-related differences in healthy and osteoarthritic mouse tibias show future imaging biomarkers?* Anatomical Society Summer Meeting, Glasgow. Abstract published in Journal of Anatomy. (Talk)

2021 | **Herbst EC**, Lautenschlager S, Fioritti N, Meade L, Scheyer TM. 2021. *Modelling muscle volumes for finite element analysis and multibody dynamics.* XVIII International Symposium on Computer Simulation in Biomechanics. Online. (Talk)

2021 | Webb NM, Fornai C, Krenn VA, **Herbst EC**, Haeusler M. 2021. *A tight squeeze for chimpanzees: the role of joint laxity and fetal head orientation during birth.* European Society for the Study of Human Evolution. Online. Abstract published in PaleoAnthropology, pg. 270. (Talk)

2021 | Evans LAE*, **Herbst EC***, Felder AA, Ajami S, Jahaveri B, Pitsillides AA. *Do 3D epiphyseal bone architectural changes in ageing STR/Ort and healthy mice reveal early imaging biomarkers of osteoarthritis?* Bone Research Society Annual Meeting. Online. (Talk, winner of New Investigator Award). Abstract published in JMBR Plus, pg. 6

2021 | **Herbst EC**, Eberhard E, Manafzadeh AR, Richards C, Hutchinson JR. *New methods support the possibility of a salamander-like walk in the Permian tetrapod Eryops.* Society for Integrative and Comparative Biology Annual Meeting, Online. (Talk, winner of D. Dwight Davis Award Session)

2021 | **Herbst EC**, Bastiaans D**, Miedema F, Scheyer TM, Lautenschlager S. 2021. *How important is modeling tooth enamel in FEA comparisons of whole skulls? Comparing common simplifications with biologically realistic models.* Society for Integrative and Comparative Biology Annual Meeting, Online. (Poster)

2021 | Bastiaans D**, **Herbst EC**, Scheyer TM. *Bringing fossils back to life: 3D cranial reconstructions of the highly flattened remains of thalattosauriformes.* Society for Integrative and Comparative Biology Annual Meeting, Online. (Talk)

2020 | **Herbst EC**, Eberhard E, Manafzadeh AR, Richards C, Hutchinson JR. 2020. *Was the early tetrapod Eryops capable of a salamander-like walk? Developing new methods to test paleontological hypotheses about posture and gait*. Swiss Geosciences Meeting, Online. (Talk, winner of Swiss Commission of Palaeontology Prize)

2020 | **Herbst EC**, Felder AA, Evans LAE, Jahaveri B, Ajami S, Pitsillides AA. *A new automated method of segmenting trabecular bone: investigating subchondral trabecular changes as a predictor of osteoarthritis at the joint surface.* Bone Research Society Annual Meeting, Online. (Poster). Abstract published in JMBR Plus pg. 51

2020 | **Herbst EC**, Eberhard E, Richards C, Hutchinson JR. *Comparing in vivo and ex vivo knee range of motion in salamanders: a new method for investigating joint mobility.* CAMS-Knee OpenSim Workshop, ETH, Zürich. (Poster)

2020 | Bastiaans D**, **Herbst EC**, Scheyer TM. *Re-fleshing fossils: cranial reconstructions of thalattosauriformes*. Swiss Geosciences Meeting, Online. (Talk)

2020 | Bastiaans D**, **Herbst EC**, Webb NM, Haeusler M, Scheyer TM. *3D Data, a gateway to open science: the FEZ initiative*. OILS (Open Innovation in Life Sciences), Online. (Talk)

2020 | Bastiaans D**, **Herbst EC**, Scheyer TM. *Virtual paleontology: a modern look at ancient material*. OILS (Open Innovation in Life Sciences), Online. (Talk)

2020 | Bastiaans D**, **Herbst EC**, Scheyer TM. *Thalattosauriformes: schedelreconstructies van Triassische weirdos*. NKVP (Nederlandse Kring van Vertebraten Paleontologen), Online (Talk).

2019 | **Herbst EC**, Eberhard EA, Richards CT, Hutchinson JR. 2019. *A new method for investigating joint mobility and its relevance for inferring locomotor evolution in early tetrapods.* 12th International Congress of Vertebrate Morphology, Prague, Czech Republic, abstract here (Talk)

2018 | **Herbst EC**, Doube M, Smithson TR, Clack J, Hutchinson JR. *Paleopathologies in Carboniferous tetrapods and the evolution of bone healing.* Society of Vertebrate Paleontology, 78th Annual Meeting, Albuquerque, New Mexico. (Poster)

2018 | CM Holliday, **Herbst EC**, M Jacoby, A Smolinsky, K Sellers. *Morphometric and modeling approaches to understanding the evolution of pseudosuchian mandibular symphyses.* Society of Vertebrate Paleontology, 78th Annual Meeting, Albuquerque, New Mexico. (Talk)

2018 | **Herbst EC** 2018. *New elements discovered in the early tetrapod Crassigyrinus scoticus.* DVM SICB Regional Meeting, Natural History Museum, London. (Talk)

2018 | **Herbst EC**, Smithson TR, Clack J, Doube M, Hutchinson JR. *Bony lesions in early tetrapods and the evolution of bone healing.* Society of Integrative and Comparative Biology Annual Meeting, San Francisco. (Talk)

2017 | **Herbst EC** and Hutchinson JR. *New insights into the morphology of the Carboniferous tetrapod Crassigyrinus scoticus gleaned from computer tomography.* The Early Tetrapod World: a one-day conference celebrating the career of Prof Jenny Clack FRS. University of Cambridge. (Invited Conference Talk)

2017 | **Herbst EC**, Smithson TR, Clack J, Hutchinson JR 2017. *Pathology in the early tetrapod Crassigyrinus scoticus*. Progressive Palaeontology Annual Meeting, University of Leicester. (Talk)

Invited Talks and Workshops

2021 | *Computational tools to investigate 3D form and function in extinct and extant taxa.* Palaeontology Discussion Group Seminar Series, University of Bristol, UK.

2021 | *Reconstructing feeding function in Triassic reptiles: computational methods for biomechanical analyses.* Public Colloquium Series, Palaeontological Institute and Museum, University of Zurich, Switzerland.

2021 | *Workshop: Trabecular bone segmentation.* Senckenberg Museum and Research Institute, Frankfurt, Germany. Recording available on Youtube.

2021 | *Motion capture and computational approaches to investigate joint range of motion* Palaeontology Discussion Group, University of Birmingham, UK.

2021 | *Workshop: How to clean 3D meshes in Blender* FunkyMUG (Functional Morphology Users Group). Recording available on Youtube.

2021 | *New methods support the possibility of a salamander-like walk in the Permian tetrapod Eryops.* Comparative Zoology Lab, Humboldt University Berlin & Natural History Museum Berlin, Germany.

2020 | *Investigating joint range of motion in salamanders and early tetrapods.* Evolutionary Morphology and Biomechanics Group, University of Liverpool, UK.

2019 | *Computational analysis of the evolution of amphibian locomotor modes.* Postgraduate Research Day, Final Year PhD Session, Royal Veterinary College, London.

2017 | *Functional morphology of Crassigyrinus scoticus: gaining insight into locomotor evolution in early tetrapods.* Postgraduate Research Day, Royal Veterinary College, London. (Poster)

2017 | *Computational analysis of the evolution of amphibian locomotor modes.* Postgraduate Seminar Series, Royal Veterinary College, London.

Teaching and Supervision

Supervision | • **Jan Heres**, Master's Thesis: Reconstruction of a patient-specific model of the humerus bone. University of West Bohemia (acting as external supervisor). *Ongoing.*
• **Dennis Agbanyim**, Master's Thesis: Bone Density Calibration, ETH Zurich (2024)
• **Flavia Stettler**, Semester Project: Humeral Translations, ETH Zurich (2024)
• **Dylan Bastiaans**, PhD Thesis: Digital Palaontology and Biomechancis, UZH (2019-2023)
• **Kehan Pan**, Semester Project: Skull FEA, ETH Zurich (2022)

Teaching | • **Lectures Bio 262 & 267:** *Using Computer Tools to Investigate Biomechanics of Animals.* University of Zurich. 2020-2022.
• **Bio 262: Evolutionary Morphology of Vertebrates: Issues and Methods**. Role: leading and designing anatomy practicals. University of Zurich. 2021,2022
• **Bio 267:, Paleobiology and Evolution of Vertebrates**. Role: leading and designing anatomy practicals. University of Zurich. 2021,2022
• **Comparative Animal Locomotion**. Role: leading research paper seminar. Royal Veterinary College, London. 2017, 2018.